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The Use of Color in Our Parks.

NOT long ago it was stated in an article in *Gartenflora* that the tendency of garden art in our eastern states is to "banish all pattern-beds, and, to a great degree, even flowers and bright-hued foliage-plants" from our public parks. This is undoubtedly correct as to pattern-beds, if we are to understand by the term such eccentricities in design as those created by the German artist who decorates the landscape in Washington Park, Chicago. But if we are to understand by pattern-beds all formal arrangements, we apprehend the statement is too sweeping. It is pleasant to observe, even in our private pleasure-grounds, a tendency to more quiet treatment, although there are still some excesses in the way of conventional floral effects, but we are afraid that there is no immediate prospect that even carpet-bedding of the most conspicuous sort will be altogether dispensed with. Some of our public pleasure-grounds, like the Boston Public Garden, are still spotted with too many beds of violent color, and there is little fear that the taste for naturalistic effect will become so strong that it will not tolerate formal planting in places where such planting is desirable. If there are comparatively few pattern-beds in the great public parks of our eastern states, it is owing to the fact that much the greater part of our park area is naturalistic in design, and, therefore, affords few appropriate places for formal features. Wherever the treatment is semi-architectural, as, for example, on the the terrace in Prospect Park, in Brooklyn, formal arrangements of flowers are often effectively employed. Where natural elements predominate, and architectural elements are subordinate, as is the rule in our public parks, formal gardening is out of place; but in private grounds these conditions are often reversed, and in such cases, so far as we have observed, there is no attempt made on the part of architects or landscape-gardeners, either in theory or practice, to banish formal gardening arrangements.

It is quite easy for one who has an absorbing admiration for pattern-gardens to have no affection for, or appreciation of, flowers for their own sake. It is the picture which is admired—the flag or the calendar or the map of the world—and not the individual flowers which compose it. Indeed, when flowers of a given color are lacking it is a common practice of Chicago artists to use stones and shells or bits of glass to supply the proper tint. Opposition to designs of this sort, therefore, does not imply any objection to flowers. The suggestion that there is a tendency to banish flowers from our pleasure-grounds would never occur to one who has noted the wonderful wealth of trees and shrubs with showy flowers which our parks contain. Our country is unusually rich in plants of this sort, and they are the special glory of many parks. Such natural wood borders as those found in Druid Hill Park, Baltimore, and in Prospect Park, Brooklyn, are brilliant with color in spring and early summer, and so are the artificial plantations in Central Park. No display of pattern-beds could be as gorgeous as the masses of Rhododendron-flowers which unfold themselves every spring in the ravine at the northern end of Central Park; no panorama could be more brilliant in color than its drives and walks when the Forsythias, Amelanchiers, Japan Quinces, Spiræas, Dogwoods, Judas-trees, Paulownias, Azaleas, Catalpas and many more succeed each other in bloom; and the magnificent richness of color which flowering shrubs can present is the delight and marvel of all who see the small parks and gardens of Washington in spring and early summer.

These floral displays are transitory, it is true, but one follows another so closely that no season lacks beauty of color, and it may be said that even pattern-beds are but short-lived in our climate. The plants do not well cover the soil until July, and they perish with the first touch of frost, so that, except for this short intermediate season, these raw beds are blotches on the face of nature, while a fine tree or shrub is beautiful, not only when in bloom, but throughout the season, and even when winter has robbed it of its foliage. Nor are flowering herbaceous plants neglected, as every one knows who has seen the Water-lilies in Central Park or the plantations at the head of the Mall, or the profusion of more modest flowers which are scattered throughout its groves and glades and amid the grass of its lawns. The tendency, too, is to introduce more wild flowers, which, though inconspicuous in themselves, form great masses of color, associated with turf and shrubbery, as nature dictates; while every year the shrub-borders in all our parks grow brighter with the increased use of hardy perennial herbs.

The statement that there is a tendency in the eastern states to "banish bright-hued foliage-plants" from the parks is, we are glad to say, more strictly accurate. Small-sized plants with leaves of abnormal color are sometimes useful in formal arrangements, but it is a gratifying fact that the employment of shrubs and trees with yellow, reddish white, streaked or spotted leaves is less profuse here than it is in European parks. Of course, this does not mean that there is any monotony of color in our woods and shrubberies, for between the pallid grays of the Elæagnus and the Lead-plant to the almost blackish tone of many Pines, there is a wide range of color through all the greens and kindred tints. But there is a radical difference between the use of flowers and the use of bright-hued foliage in producing those conspicuous color-effects, which, when properly used, are pleasing to the eye. Nature has pointed out this difference, and the artist who keeps her methods in view may mass his flowers profusely with a most beautiful result. A meadow full of Buttercups, masses of white Dogwood-flowers mingled with the coral sprays of the Judas-tree and the paler pink of the Crab-apple, banks of pink and white Mountain Laurel, hollows filled with the shaded crimsons and purples of Rhododendron-blossoms, these and a hundred other combinations offer an abundance of bright tints in large masses, which give exquisite pleasure. But in our temperate latitudes nature uses variegated foliage very sparingly. Indeed, bright-colored leaves are hardly seen at all, except for a few days when spring suddenly bursts upon us, or when, in autumn, all the woods are aflame with gorgeous tints. Even then

the display endures for a short time only, and it is more beautiful because it is fleeting.

It is true that the gardener now has at command an abundance of plants with vivid foliage which have developed under other climatic conditions, or, as is more generally the case which have resulted from his own efforts to perpetuate chance freaks of nature, which, had she been left to herself, would never have multiplied to any appreciable extent. When, therefore, we use these plants with bright-hued foliage in the landscape-effects which we elaborate in temperate regions, we introduce novelties of our own invention. We are not carrying out nature's essential scheme, but are weaving in materials foreign to her local ideal; we are not delicately or forcibly varying the melody which she has composed, but are trying to incorporate with it alien notes and chords. And this indicates that here is a line on which we should work cautiously at least, lest nature's original plan be ruined and her original harmony become a series of discordant fragments. These considerations are vaguely felt, although the cause of them may not be thoroughly analyzed, by every person of taste who contemplates the average European park, with its abundance of pallid Negundos, or an American private pleasure-ground, with its masses of Prunus Pissardi. Many plants and trees with bright-hued foliage are charming in themselves, and ungrudgingly admired when seen in small numbers and in appropriate situations. That they seem out of harmony with their surroundings when profusely employed in naturalistic landscape is owing to the fact that in our part of the world nature grows brilliant flowers in great abundance, but is niggardly in the production of bright-hued leaves, and that to attain artistic and satisfying results we must always follow the broad lines which nature lays down.

Again, the unchanging character of bright-hued foliage-plants is an argument against their abundant use. Flowers are transitory. Plants which bloom all the season produce flowers sparingly at any one time, and those which bloom profusely relapse into quiet greenness after a few days of splendor. Therefore we do not grow tired of the most gorgeous color combinations which are wrought with blossoming trees and shrubs, nor have we time to weary of the tender tints of opening leaves in spring, or the crimson and golden glories of our autumn foliage. But the vivid and variegated plants which are so much affected by French park-makers and by American amateurs are the same from one end of the season to the other. No matter how much we may admire the magnificence of an October forest, we should tire of such a forest if it were before our eyes from May to November; no matter how much we regret the fading flowers of the Rhododendron, we know it is better that they should fade so that we can enjoy the quiet green of their foliage for the rest of the year, and welcome their flowering season again with greater delight. We may crave the beauty of color all the year through, but we only get this beauty at its full by a sequence of effects each dissimilar to all the rest, and, therefore, we have no regrets at a tendency to exclude from our parks so-called foliage-plants with their monotony of odd color so long as we have a profusion of flowering plants which show as the seasons move the constantly renewed beauty of ever-changing tints after nature's approved method.

The Gardens of the Early New England Colonists.

THE early colonists of New England were from all classes and conditions. Many were connected with families of great prosperity and affluence. It may, therefore, be rightly conjectured that a fair proportion brought with them to the New World that inherent love for horticultural pursuits, and that sensibility to natural beauties, which have marked the English as a nation, at least since the accession of Edward III.

Before the accession of Queen Elizabeth, horticulture in Europe had been considered rather as a mechanical art, but in this reign it was destined to become enriched by establishing national gardens for the scientific cultivation of plants, thereby rendering the study of horticulture and botany more popular. This course was pursued not only in England, but also upon the Continent. The impetus thus given created a host of writers and practical observers upon all subjects pertaining to gardening, and led to the introduction of new plants from foreign countries, especially from the New World and from the Indies. Many of these, at first imported as mere novelties, were soon sought for as necessities as well as luxuries. Tobacco, tea and the potato may be thus enumerated.

Among the writers who, during the latter part of the sixteenth and during the seventeenth century, became authorities in England and have so contiued, may be mentioned Didymus, Scot, Dethycke, Thomas Hill, Maschal, Platt, Heresbach, Gerarde, Markham, Parkinson, Tradescant, Evelynn, Worlidge, Sir William Temple and Lord Bacon.

It is hardly to be supposed that the earliest settlers in the plantations of Plymouth and Massachusetts Bay would pay much attention during their first years in the country to æsthetic principles in laying out their gardens, however well they might be versed in these as advanced by Parkinson, whose *Paradisus terrestris* explained the details of a garden practice adapted to the climate of New England as well as of old England, or of other writers with whose works they were doubtless more or less familiar. It was with many a contest for existence, and in the preparation of the soil for the raising of the necessities of life they found ample occupation. It is not until the middle of the seventeenth century that we find any account of gardens laid out in a manner that indicated the increased affluence of the colonists, and these were mostly in the principal centres of population.

Our knowledge of the horticultural affairs of the first planters is gleaned from a few authorities. Higginson's *New England's Plantation* was published in London in 1630, before the sailing of Winthrop's fleet. Writing in 1629, the reverend divine says: "The fertility of the soil is to be admired at, as appeareth in the abundance of grass that groweth everywhere, both very thick, very long and very high in divers places. . . . But the abundant increase of corn proves this country to be a wonderment. Thirty, forty, fifty, sixty, are ordinary here. Yea, Joseph's increase in Egypt is outstripped here with us. . . . They have tried our English corn at New Plymouth Plantation, so that all our several grains will grow here very well, and have a fitting soil for their nature. Our Governor hath store of green pease growing in his garden as good as ever I eat in England. This country aboundeth naturally with store of roots of great variety, and good to eat. Our turnips, parsnips and carrots are here both bigger and sweeter than is ordinarily to be found in England. Here are also store of pumpions, cowcumbers and other things of that nature which I know not. Also divers excellent pot-herbs grow abundantly among the grass, as strawberry-leaves in all places of the country, and plenty of strawberries in their time, and pennyroyal, winter savory, sorrel, brookline, liverwort, carvel and water cresses; also leeks and onions are ordinary, and divers physical herbs. Here are also abundance of other sweet herbs, delightful to the smell, whose names we know not, and plenty of single damask roses, very sweet, and two kinds of flowers very sweet, which they say are as good to make cordage or cloth as any hemp or flax we have. Excellent vines are here up and down in the woods. Our Governor hath already planted a vineyard, with great hope of increase. Also mulberries, plums, raspberries, currants, chestnuts, filberts, walnuts, small nuts, hurtleberries, and haws of whitethorn, near as good as our cherries in England, they grow in plenty here."

In Wood's *New England's Prospect* we have a true, lively and experimental description of that part of America commonly called New England. William Wood, the

author, came to these shores in 1629. He herein gives the result of his observations and experience during a residence of four years, publishing his book in London in 1635. Having spoken in the early chapters of the situation, seasons and climate, he next discourses upon "the Hearbs, Fruits, woods, water and Minerals." "The ground affords very good kitchin Gardens, for Turneps, Parsnips, Carrots, Radishe and Pumpions, Muskmillions, Isquouterquashes, Coucumbers, Onyons, and whatsoever grows well in England, growes as well there, many things being better and larger. There is also growing all manner of hearbes for meate and medicine, and that not onely in planted gardens but in the Woods, without eyther the art or the helpe of man, as sweet Marjoran, Purselane, Sorrell, Peneriall, Yarrow, Mirtle, Saxifarilla, Bayes, etc. There is likewise Strawberries in abundance." He devotes a chapter to a consideration of the several plantations. Among these he mentions more particularly the following:

Dorchester "has very good arable grounds, and hay ground, faire cornefields, and pleasant gardens with kitchengardens."

Roxberry "has faire houses, impaled corne-fields, and fruitfull gardens."

Boston, "where dwells the Governour, hath very giod land, affording rich corne-fields, and fruitful gardens, having also sweete and pleasant Springs." William Blackstone, in 1625, "is cultivating a garden, and watching the growth of some apple trees on the westerly slopes of Trimountain." . . . . . "On Gov. Winthrop's island is planted an orchard and a vine-yard, with many other conveniences.

In *New-England's Rarities*, Josselyn says, "The plants in New-England for the variety, number, beauty and vertues, may stand in competition with the plants of any countrey in Europe." In the list of these which he gives, we have the fullest account of the plants which made up the collection to be found in the gardens of our remote grandmothers. These excellent dames would seem under the circumstances, to have fared well. Their English and Indian beans and peas; their various roots of excellent quality, beets, parsnips, turnips and carrots; the cabbages, asparagus, radishes and lettuce; their various and numerous pot-herbs and sweet-herbs; the Indian pampions, melons and squashes—all testify to this belief.

Nor should those dear reminders of their childhood's home, the sweet familiar flowers, be forgotten, the White Satten, the Lavender cotton, the Gillyflowers and Hollyhocks, possibly arranged by themselves, in "a garden of Pleasure" laid out with formal paths, bordered by "sweteherbes," as Parkinson advises, and the whole surrounded by a hedge-row composed of English Roses, Eglantine, Barberries, and Privet, for the planting of which Josselyn gives full directions. The Lilacs and the Snowballs are reserved for the modest adornment of the door-yard as precious souvenirs of Old England.

Chestnut Hill, Mass. *Daniel Denison Slade.*

Botanical Notes from Texas.—XXI.

WHEN the traveler, going westward on the Southern Pacific Railway, has left San Antonio about one hundred and seventy miles behind him, the brakeman's call, "Del Rio," advises him that the valley of the great river of the north, though two or three miles away, is in sight. Del Rio is a pleasant little city of about two thousand inhabitants, whose name is significant of its proximity to the river. It is built in a large and beautiful valley, from which the county, of which the city is the capital, Val Verde, is named.

The latitude of Del Rio is about twenty-nine degrees twenty minutes. The one hundred and first meridian runs just west of the city. The city of Mexico is nearly south of Del Rio, about twelve hundred miles away. El Paso is some four hundred and fifty miles farther up the river. New Orleans is about seven hundred and fifty miles nearly east.

A mile or so from the city there are several large and powerful springs of excellent water; together these springs form the San Felipe River. In its short, but very swift, course to the Rio Grande, it not only affords abundant water-power, but also can be made to water nearly the entire valley through which it flows. If the people of Del Rio will in a liberal way improve their natural advantages they can make it a large and prosperous city, and this good work, to some extent, has been begun. Cultivated fields and orchards and vineyards abound in the valley. Wine to the amount of several thousand gallons is made annually in Del Rio, and viticulture is capable of indefinite extension here. Apples, Pears, Peaches, Apricots, Quinces and Plums are also to some extent in cultivation. All of those fruits succeed better than the Apple. With irrigation, fruits grown here are nearly independent of the clouds for their supply of water. Nature has made the soil all that is required for success. But late "Norters," after a summer-winter, such as south-western Texas is now enjoying, quite often blast fruit-growers' hopes of a crop, even when the fruit is nearly half-grown. No part of Texas, unless it be a small portion of the state near Brownsville, is exempt from those sudden extremes of cold. There seems to be no way to avoid them except for the state to throw up a range of mountains, say, a mile or two high, along its northern boundary. The occasional destruction of a fruit-crop, unless the trees, too, are injured by the cold, as they sometimes are, might, however, prove a less serious loss to the grower than to the consumer of the fruit.

The proximity of the river and the sparseness of the human population in this region afford pleasure-seekers good hunting, and sometimes plenty of game. Away from the settlements wild turkeys are still abundant. Dry weather has driven most of the quail to regions favored with more rain, and therefore with more grain-fields where they may glean. I saw a single covey of the handsome California species near the city, and the Texas Bob White is also here. The common American deer and the antelope are yet common. Here, too, the colored man may still luxuriate on his favorite opossum. The fox, raccoon, badger, lynx and three or four other species of cat, including the dreaded Mexican lion, two species of wolf, the black bear and the southern armadillo, with the fox-squirrel in abundance, inhabit this portion of the Rio Grande region.

From the summit of Round Mountain, a sedimentary hill in the lower San Felipe valley, on a clear, bright, early winter morning, a broad and pleasant field of views opens up to the visitor. He sees the San Felipe, with its beautiful valley, from its source to where it is lost in the Rio Grande; the winding valley of that river, Del Rio, the hills and mountains in the distance; and across the Rio Grande he sees scores of the thatched adobe houses in Mexico, while the peaks of San Rosa Mountains stand up against the distant sky.

To northern readers a botanical excursion on Christmas may seem untimely. But here we were on Christmas-day in south-western Texas. Some wild plant may be collected every day of almost any year. That is especially true of the present winter, in which no norther has yet visited Texas. I am writing in early February, and here at Fort Clark, even Sophora secundiflora shows its violet flowers, and many individuals of the Berberis, common to this region, are in full bloom. A little farther south of us Peach-trees are already pink with their blossoms.

On the lowlands, near Rio Grande, grow Baccharis glutinosa and B. angustifolia. All the beauty that Nature has vouchsafed to the genus Baccharis resides in the elongated plumose pappus of some of her species. Neither of the species mentioned is celebrated for its beauty, but at Uvalde, near the lake, I saw another species, probably B. salicifolia. It was in the full glory of its fruiting and was attractive and handsome. The species growing here are somewhat useful. They are tall shrubby plants, growing ten or more feet tall and becoming three to four inches in diameter. Mexicans use the slim trunks for fagots, for light fencing and for thatching. They are also useful in holding together and strengthening the banks of irrigating ditches. B. angustifolia is known as Cedar wherever it grows in western Texas.

There are several dams across the San Felipe to afford more water-power or to supply the irrigating ditches. In the ponds created by the dams, and everywhere in still water, Nymphæa advena grows in great luxuriance, and hundreds of its peculiar but homely flowers appear above the water. In both still and flowing water of the San Felipe, along whose banks we strolled, queer little Trichocoronis rivularis is very common. Sometimes it makes the surface of the water white with its small flowers. It is a composite and clearly amphibious in its way of living. In shallow water it roots in the soil at the bottom of the stream in which it grows. In deeper water rootlets and all float. When growing in water, which sometimes fails it, still it is not discouraged, but pushes its roots into the liman and grows equally as well there. It is a south-western species.

A tall, handsome Golden-rod, with some of its stems still in flower, grows abundantly along the river. Flowering individuals of Bidens chrysanthemoides are still more frequently to be seen. It is the most common Texas species of its genus. Near one of the large springs I collected flowering specimens of a rather pretty small-leaved Eupatorium.

Andropogon glomeratus, with its panicles browned and reddened by the wind and sun, fringes the bank of the river wherever it can gain a foothold in the soil. Sometimes it shares its space with our handsome southern Maiden-hair, Adiantum Capillus-Veneris. A species of Agrostis, and one of Letaria, are also common near the water, and still growing vigorously. In a damp, warm spot close to San Felipe, a Sonchus was displaying its large yellow head of flowers to the Christmas sun and looked a Merry Christmas to everybody.

Eagle Pass, Texas. *E. N. Plank.*

Entomological.

A Scale Insect on Plums.

A SCALE insect which has hitherto been considered a comparatively rare species has recently attracted attention by its attacks on Plum-trees in New York state. One man from Niagara County reports that some of his Plum-trees have been killed by it, but no instances of this kind have yet come under my observation. When it occurs in such numbers as to nearly cover the bark, as shown in the accompanying illustration on this page, there can be no doubt that it is capable of injuring the trees. This illustration is from a photograph of an infested branch of the Bradshaw Plum. On the twig at the right are seen scars showing where some of the scales have been removed. The actual length and width of a full-grown scale is indicated by the cross lines in the illustration. The dimensions are usually about five millimeters by four—that is to say, about seven thirty-seconds by five thirty-seconds of an inch.

At the present writing, June 20th, the scales are filled with a whitish powder, which, examined with a lens, proves to be composed of eggs. The young lice which are produced from the eggs in the spring had already issued from the old scales this season about May 10th, when my attention was first called to the insect. The branches were then covered with a sticky substance like honeydew, evidently secreted by the young insects. On leaving the old scale they crawl over the branches till, finding a convenient location, they attach themselves to the bark. They seem to prefer a location on the under side of the limbs. At first they are whitish, or nearly transparent, but gradually assume the dark reddish brown color of the mature insect.

Mr. L. O. Howard, the United States Entomologist, to whom specimens were submitted for identification, states that it is a somewhat rare species known as Lecanium cerasifex. He advocates spraying with dilute kerosene emulsion when the young insects first appear in the spring. The scales are soft and easily loosened from their attachment, and might readily be brushed or scraped from the larger branches.

Thus far I have seen the insect in Niagara, Monroe and Ontario Counties, indicating that it is quite widely distributed in western New York. So far as I have observed, Plums are most seriously attacked, though the insect has also been found on Apple, Pear, Maple and Cissus, showing that it has a wide range of host plants.

Geneva, N. Y. *S. A. Beach.*

New or Little-known Plants.

Deutzia discolor, var. purpurascens.

THIS plant was discovered in the Chinese province of Yun-nan by the French missionary Delavay, who, in 1888, sent seed of it to the Museum in Paris. Last year flowers were shown in Paris by Monsieur Cornu, at an exhibition of the French Horticultural Society, from a plant growing in the garden of the Museum, and early in June a plant flowered in the Arnold Arboretum, and again during the present season.

Deutzia discolor, var. purpurascens (see p. 287), is a shrub of neat, compact habit, two to three feet tall, with slender stems, thin ovate leaves scabrous on the upper surface and compact panicles of pale pink flowers. From Deutzia discolor, a species of central China not yet in our gardens, it differs in its shorter, thicker and rougher leaves, in its thicker pedicels, much broader calyx-lobes and colored petals; like that plant it has unusually broad petaloid filaments.

The hardiness of the Yun-nan plant in our northern states cannot be assured yet, as the plant in the Arboretum has been wintered, as a measure of precaution, in a cold frame; but the climate of Yun-nan is of such a semi-tropical character that only plants from its high mountains can be expected to flourish here. From Philadelphia southward, however, this Deutzia, peculiar in the color of its abundant flowers, may be expected to become a valuable and favorite garden-plant.

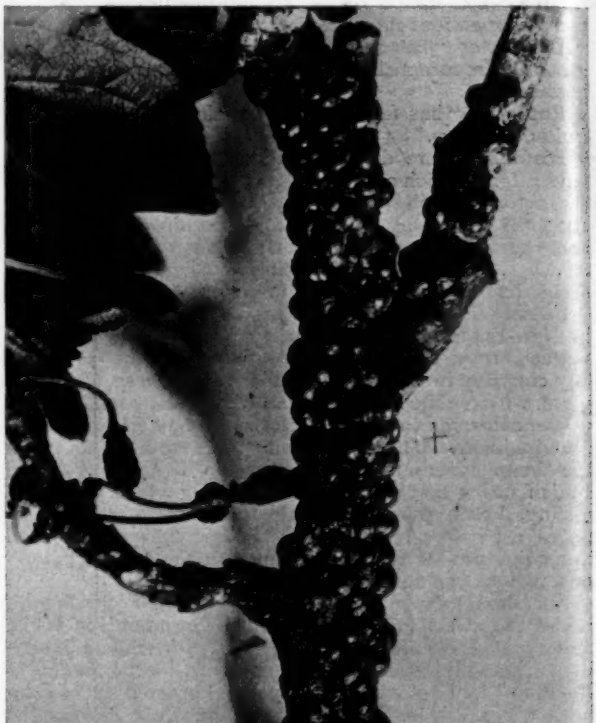

Fig. 47.—Branch of Plum infested with scale, Lecanium cerasifex.

Plant Notes.

Morina longifolia.—Just now this is one of the most interesting hardy plants in flower, and is at the same time one of the rarest. Mr. Orpet writes that it has proved perfectly hardy in eastern Massachusetts, having survived three winters there without protection, and it has been grown on from the seedling stage in the position it now occupies. This is the second season of its flowering there, and it is much more striking than it was last year, and the flower-spikes are stronger. When not in bloom the plant

resembles a Thistle, so much so in fact as to endanger its existence when the border is being weeded, but a label has so far protected it. The flowers are produced in whorls round the stem for the greater part of its length, or about two feet, and on first opening these are white and resemble those of a Verbascum, but each day they change color through various shades of pink to a deep carmine as they fade. There seems to be no special care needed in the cultivation of Morina longifolia; it is a plant that should be put in the front row of the border, because of its dwarf habit, and it will not then be smothered by coarser-growing plants, as is too often the case with the weaker border-plants. Two other species, M. Wallichi and M. Coulteriana, are in cultivation, but are exceedingly rare; the plant often seen in seed-lists as M. elegans is synonymous with M. longifolia, and all are natives of the Himalayas. The easiest way to propagate the plant is by seeds, which germinate freely when sown in the greenhouse in spring. Mr. Orpet writes that the plant he has raised promises to seed this year.

STROPHANTHUS PETERSIANUS.—This new plant has lately flowered for the first time in a stove at Kew, and has attracted attention on account of its yellow and red octopus-like flowers, borne on the ends of short lateral branches which spring from the main stem. The plant is a climber with ovate-lanceolate leaves, and the flowers are funnel-shaped, with a broad-mouthed tube one and a half inches long, the apex surrounded by a fringe of erect lanceolate scales half an inch long, and the five twisted corolla lobes hanging down to a length of six inches, suggestive of the arms of the octopus or the snakes of Medusa. Strophanthus is a tropical genus of about twenty species of trees and shrubs, some of which are known to yield a most deadly poison. Several species, namely, S. dichotomus, S. Bullenianus and S. longicaudatus, are known in gardens, but they are inferior in floral attractiveness to this new one. The Kew plant was raised from seeds received from Delagoa Bay in 1884.

ROSA SETIGERA.—We have often spoken of the value of this native Rose, the only American Rose with climbing stems, and yet it takes a long time for even a good plant to work its way into gardens, and this one is still too much neglected. The Prairie Rose is perfectly hardy in the northern states; it has clean, large and abundant foliage, and it has the merit of blooming after the general rose season is past, being at its best in this latitude in the second and third weeks of July. When trained to a pillar or over a veranda its clusters of large, rose-colored, single flowers make a brighter display than any of the double-flowered Roses. It can also be planted alone in an open space, where its stems will rise for three or four feet and then arch over and trail on the ground, forming a mound of foliage ten or twelve feet in diameter. It is still more effectively planted at the top of a bank, from which its strong and graceful shoots will trail down for a distance of fifteen or twenty feet. Unfortunately, it has no perfume.

LYTHRUM SALICARIA.—This is not a native plant, but it has become so thoroughly naturalized that it is common in moist meadow-land throughout all our eastern states. In Europe it is found, naturally, on the banks of rivers, and here it can be most effectively used on the borders of water where its tall spikes, from four to six feet high, bearing abundant dark purple flowers, are seen to the best advantage, with a background of foliage. This long inflorescence, too, makes the plant useful for cutting when the spikes are loosely arranged in large vases. There are one or two well-marked varieties which are as good or better than the type, and all of them keep in flower for a long time. This loose stripe belongs to that sturdy class of plants which need no looking after when they once get fair root-hold.

NELUMBIUM SPECIOSUM.—About five years ago we gave an illustrated account of a pond in New Jersey where the Sacred Lotus had become naturalized, but the cultivation of all aquatic plants has increased so rapidly in this country that it is no longer extraordinary to find this Lotus running wild. The latest example of this which has come to our notice is in a pond near Little Falls, New Jersey, in which Mr. N. Radcliffe placed a single root of Nelumbium speciosum in May, 1892. He set the root a short distance from the shore of a small pond rather more than one hundred feet long and fifty feet wide, and built a stone-wall about it two feet thick for protection. This boundary, however, has failed to restrain it, and this year it has occupied at least two-thirds of the pond and is rapidly taking possession of the remainder. Many of the large leaves measure more than thirty inches in diameter, and a hundred open flowers can be seen any morning, borne on graceful stems which hold them five or six feet above the water. No aquatic plant is more effective than this Nelumbium with its noble foliage and pink flowers of giant size, but without any suggestion of coarseness, and few plants require less attention.

Cultural Department.

The Rock-garden.

THE rock-garden in July lacks some of its brightness in June, but with many new flowers it continues interesting. Campanula Carpathica, in many varietal forms and shades of blue and white, from self-sown seedlings, with the dwarf variety of C. grandiflora, from Japan, known as Mariesi; the handsome C. macrantha, C. Tenorei, C. Pallasii and C. Gargauica combine to make blue a dominant color. Columbines, with the exception of Aquilegia chrysantha and A. Skinneri, are all gone by. Pinks are in profusion. Dianthus arenarius, the Sand Pink, is particularly happy, and will evidently care for itself without any trouble. Several seedlings appear, but as we have also the nearly allied forms of D. plumarius, the Cyclops and Maiden Pinks, it is doubtful whether they will come true. The Sand Pink is a compact-growing, small-flowered species, with much-slashed petals, of light rose, and a blotch of magenta at the base of each petal. A mass of these is very effective. D. subcaulescens is a most diminutive and truly alpine species and delights to penetrate clefts of rock. It is becoming re-established after removal last year, when it appeared as if we should lose it. The flowers are small, light rose, borne on slender stems not more than two inches long.

Interspersed among these low-growing plants we have the Meadow Sweet, Spiræa ulmaria, white; S. venusta and S. palmata, pink; some tall Campanulas, Aster concolor and A. Bessarabicus to break the surface effectively. Œnothera Missouriensis comes in toward the end of June and continues to blossom until autumn. It is an excellent plant for rather dry soils and ought to be in every garden. Here we have it where its trailing stems gracefully hang over the rocks. Heuchera sanguinea, too, is a continuous bloomer. Alyssum argenteum, with silvery leaves and heads of greenish-yellow flowers, is not particularly showy, but it deserves a nook in the rock-garden. Rock Roses come and go, their flowers lasting but a day or two. These low-growing evergreens are perfectly at home in sunny positions in dry soil. Aster concolor, although strictly speaking a border plant, we find a place for, and against a wall in restricted territory is very showy.

Sedums, Sempervivums and Saxifrages along the edges of paths must not be overlooked, and are just where they ought always to be. They are chiefly noted for neatness of habit and symmetry of form, and among them the cobwebby Sempervivum arachnoideum is conspicuous. If not particularly striking in bloom, many of them are quite pretty, and where we have them in abundance some are allowed to bloom, although this means death. The flowers are borne in dichotomous cymes, and present an umbel-like head of star-shaped blossoms, generally red or rose in color, but sometimes yellow. The best-known species and varieties are S. arenarium, S. Atlanticum, S. barbatulum, a pretty little species, and very distinct; S. calcereum, one of the commonest, and often used for bedding; S. glaucum, S. grandiflorum and S. Tectorum. Among Sedums, S. acre is a very common but pretty yellow-flowered species; S. Anacampseros, with rather broad glaucous foliage and running underground stems, comes up between the rocks, and could be used with advantage to cover barren rocky places. The flowers are small, purplish, borne in dense globose heads. S. glaucum is dwarf, neat, but tender; S. lydium, a pretty pink; S. sexangulare, very neat, green; S. pulchellum, the Widow's Cross, is one of the hand-

somest of all, being an abundant bloomer—so much so, that it often flowers itself to death. These and many more can be used along rocky paths, and always attract attention. Saxifrages are also useful in similar situations, but we are somewhat restricted with these; none of the crustaceous section apparently are able to endure either our bright sunshine in summer or cold in winter.

Among Cranesbills, the showy, but generally despised native, Geranium maculatum is the first to bloom in spring, and is long ago past. Now we have C. Ibericum platytœnium, a handsome blue-purple; C. Endressi, rose-pink; C. sanguineum, deep rose, and C. pratense, white and blue—all bright showy kinds with handsome foliage. The Giant Heronsbill, Erodium Manescavi, holds out well; once we thought it was lost, being reputed tender in England, but we have made the discovery in this case, as with others, that the succulent roots decay from excessive moisture rather than cold. E. macradenium is a gem among them, with finely cut foliage and delicately veined rosy flowers. Achillea aurea, yellow, and A. Mongolica, white, are both good Yarrows, and the best of the low-growing kinds. The majestic Delphinium Przewalskianum is just opening, and although not a particularly bright yellow, is unique among perennial Larkspurs. Armeria maritima, the Sea Pink, and Astragalus Monspessulanus, the Montpelier Milk Vetch, continue, and so do the Alpine and Iceland Poppies. A considerable proportion of these are becoming double, which seems to be the case with all Poppies under cultivation. They are not as handsome as the single kinds. Lotus corniculatus occupies crevices along the paths, threatening in some places to take possession altogether. Along the edge of a wild shrubbery bordering the rock-garden, we planted a few years ago a lot of the perennial Peas, white and pink, and here they climb and make a very effective setting.

Wellesley, Mass. *T. D. H.*

Hardy Plants which Flower in Early July.

THE nettle-leaved Mullein (Verbascum Chaixii), a biennial from southern and central Europe, is a very pretty plant. The word Mullein seems to carry with it a prejudice, since it is the name of one of our commonest weeds, but there are several beautiful species of Verbascum perfectly hardy and not difficult to grow. The subject of this note, which came into flower about July 1st, grows nearly three feet high, bearing its bright yellow or sometimes white flowers in a racemed panicle. The flowers are best in the first half of the day. Toward night they partly close or seem withered, although they open again as bright as ever the next morning.

Among the most attractive of the California bulbous plants now in bloom is Calochortus macrocarpus, with its erect stems nearly two feet high and large handsome light blue flowers. C. venustus, in several varieties, is also in bloom, and I cannot think of a more attractive group of flowering plants at this season than a clump of this species, with each variety represented. I believe this species more than any other must have suggested the common name Butterfly Tulips, which is applied to many of the Calochorti. Two other species now in bloom are C. longibarbatus and C. splendens, both very pretty and free-flowering.

Brodiæa capitata has two forms, a white and a blue one, which flower simultaneously, and it seems to me should be grouped together. I am greatly pleased with B. pedunculata, which I have in flower for the first time. The flowers are borne in a large spreading umbel which rests on a stem six inches high. Each individual flower has a stem of its own about as long as that of the umbel. The flowers, ten to twenty in each umbel, are nearly white, striped with blue outside and nearly an inch wide. They open in long succession and are quite durable.

Cephalaria Tartarica is another interesting plant at this season, when it bears heads of creamy yellow flowers two inches wide on ample stems for cutting. The plants are about six feet high.

Coronilla varia, with its pink and white flowers in drooping umbels, is also making a pretty show. It is surprising to see how much of a spread a very few of these plants will make, and the flowers may be used to great advantage for cutting. Very useful, too, at this time is Gaillardia grandiflora. Its large red and yellow daisy-shaped flowers are so durable, either when left on the plants or when cut and placed in water, that one can hardly afford to be without it. A good companion to Gaillardia, flowering about the same time, is the Chamomile (Anthemis tinctoria), a plant which produces, in great abundance, pretty bright yellow flowers, a little smaller than those of the common field Daisy. It is also good for cutting. It needs a good deal of room.

Pentstemon Rœzlii, from California, grows well here. It has a great abundance of pretty bluish-purple flowers about an inch long. It is a low plant, scarcely a foot high. The ordinary collected plants are rather troublesome subjects to establish, but I think the young seedlings can be transplanted with little loss.

Few hardy plants afford more or prettier blooms than Linum flavum, and its stems are of fairly good length for cutting. It resents imperfect drainage. Lychnis Haageana and L. grandiflora, both having large showy red flowers, bloom about this time. They are quite showy in the border, but not so well suited for cutting. L. Chalcedonica, just going by, is also very fine when at its best, but is shorter-lived than some others of the genus.

Œnothera fruticosa major and Œ. riparia are both very fine species, with good rigid, bright yellow flowers.

Of the Lilies, L. Grayi is just passing out of bloom. The various forms of L. elegans are nearly past, while L. concolor, with its small and bright scarlet flowers, is just at its best. I find that this species and its apparently closely allied relative, L. Coridion, do very well in this climate and soil. A sandy or slaty soil suits them, and I never have succeeded in persuading them to bloom in a heavy soil. The largest Japan-grown bulbs I have been able to secure will nearly double in size here in a single season, and the second season the stalks are fully a third taller. L. concolor I think the more attractive of the two, and when established in the right soil yields a good supply of choice flowers. L. bulbiferum, from Europe, is just in bloom. It is a very pretty species, with light red flowers. L. Canadense is now at its best, and the variety of shades this plant gives, from light yellow to dark red, is very pleasing. L. tennifolium has already bloomed, though there is occasionally a late flower still to be seen. L. Krameri, which is just coming into bloom, has a very delicately tinted flower, a reddish-white. It is a species that, with me, will not bloom every year. Whether the bulbs require a season's rest every other year, or whether this soil is not suited to it, I am not able to say. L. Humboldtii, one of the finest of the California group, is just in bloom. It requires two or three years to establish this plant. L. Hansoni never blooms the first season with me. Indeed, those which flowered this year did not come up at all last season, and I supposed them dead. They seem to have been growing, however, and came up very strong the second season after planting.

Charlotte, Vt. *F. H. Horsford.*

Carnations and Pinks.

IN spite, or perhaps because, of the great popularity of Carnations as trade flowers we find little or no improvement among them as garden-plants. Until the advent of the Marguerite Carnations, a few years since, we were practically without a race of free-flowering garden varieties, and are yet without any remontant Carnations which are perfectly hardy, in an old stage, in this latitude. The old border kinds we have, such as Crimson Clove and Gloire de Nancy, with beautiful, fragrant flowers of the largest size, but their thick woody stems are split by frosts, and they require constant renewal if they are to be retained, and they furnish only one crop of flowers. Of even stronger habit, the Souvenir de la Malmaison, while hardy as the Cloves, is rather a plant for the glass house, under which shelter it is easily the largest and handsomest of the Carnations. Besides the exqusite old blush, there are now to be had pink and crimson Malmaisons. These are plants for private growers, as they are not free enough in flower for trade purposes.

Treated as biennials, ordinary Carnations are fairly satisfactory in giving a profusion of bloom the second year, and from good seed one has a fair lot of double, though seldom first-rate, flowers, and many single ones. Seed may be planted now, and in this latitude the young plants will winter out without protection. They sometimes linger over the second, or even the third year, but usually are scarcely worth saving. The seed one secures at the florists' indicates that the Carnations considered worth saving must primarily have the long-stemmed habit, which, while perhaps important, if their flowers are to be cut, is fatal to their effectiveness in the garden, as the plants must be staked or brushed so that flowers can be enjoyed—if flowers can ever be enjoyed among a lot of stakes. Of course, by retarding the florists' Carnations and wintering them in frames, one can have all the fashionable varieties for summer flowering, but they are all bred to long stems and are not what we wish for gardens.

The Marguerite Carnations, especially the dwarf kinds, are fairly satisfactory garden-plants, though the flowers are often thin in petal, and the colors often lack a little in depth and solidity. However, if one buys the separate colors and selects the best flowers from season to season no doubt they would leave little to be desired. If we could infuse some of the remontant character of the Carnation into the Pinks, with, perhaps, some of its colors, we should have a great race of garden-flowers. A cross of that kind was made five or six years ago, and has since been introduced twice to the novelty-loving public under two different names. The plants are perfectly hardy, but they are sprawling, long-stemmed subjects, with the dullest of single flowers. The hybridizer of these simply spoiled some good Scotch Pinks, which in their purity seem that such an improvement would not be difficult. The new Pink, Her Majesty, seems to be a new break in the direction of increased size. Growing in my border with no attention, this variety has produced flowers freely of the size of an ordinary Carnation on short wiry stems. The narrow foliage is scarcely as glaucous as that of D. plumarius, and with me the calyces of the flowers have mostly split, though they are said not to have that habit by the introducer. The plant is a decided gain, though I doubt if a border of it would be as pleasing as one of the old double white Pink, which seems to have a rather more graceful habit. A break in the direction of an occasional flowering during the summer would be more welcomed than an increase in size.

Elizabeth, N. J. *J. N. Gerard.*

Fig. 48.—Deutzia discolor, var. purpurascens.—See page 284.

are not to be despised as garden-plants. I once grew a border of these sweet flowers with great satisfaction, and a few still linger. They are wiry, sturdy, thrifty plants, as befits their name, and for large borders are to be recommended. The Scotch seed and plant houses furnish numbers of these in laced and fancy varieties.

My ideal Dianthus for a border, however, would be one like the old double white, with a more continuous habit of flower, and, perhaps, a greater range of color; size is a matter of less importance. The old double white has been beloved of generations, and is one of the sweetest of flowers, and it may, perhaps, seem hypercritical to wish for an improvement, especially as the glaucous foliage is always ornamental, but it would

Garden Strawberries.

MORE trouble is often taken in planting the Strawberry-bed for home consumption than is really needed. It has been our experience that a bed is not profitable after it has borne fruit two years, and therefore it is hoed over at this season, and late Cabbage and Cauliflower are put in the place after the soil is well manured and dug. At the same time the plot from which crops of early Beets, Beans, Turnips and Lettuce have been taken is prepared for the annual planting of a new bed of Strawberries, and in this way no ground is left idle at any period during the summer, and the greater portion of it produces two crops. As soon as the crop of fruit is gathered,

the best runners are all taken and layered in pots plunged in the soil between the rows, and in about a month these are ready to be taken and set out in the new bed, where they are kept watered for a few days and well hoed through the autumn months, all runners being picked off as they appear. These young plants make strong crowns in the three months of growing weather, and never fail to give us the following summer a full crop of large-sized fruit—larger, indeed, than we can get from the bed that is two years old, but not in such quantity. It is the old bed, therefore, which furnishes the fruit for preserving, while the young one supplies the table.

Where the Strawberry-weevil is troublesome it is a wise precaution to set the plants three in a hill, in a triangle, about a foot apart, but since adopting the plan of limiting a bed to two crops we have had little difficulty from this pest, and we set the rows straight. Some twenty-two kinds have been tried here in four years, and we have settled down to three kinds that are all to be relied upon here to be of good flavor and sure crop—Michel's Early for the first, Parker Earle for the main crop, and Gandy to produce fine dessert fruit. Some day we hope to try the Marshall; it is a wonderful Strawberry, but times must be better, or the Marshall Strawberry cheaper, before it can be planted to any extent.

South Lancaster, Mass. *E. O. Orpet.*

Raspberries.

GREAT as has been the advance all along the line in the improvement of small fruits we are still in special need of new varieties of Raspberries. Among the red varieties, Cuthbert is not quite hardy, and it is really raspy; that is, it has the worst feature of a raspberry, while lacking the best quality. It is a good berry to handle and to ship short distances. But very frequently the canes do not altogether overcome the severities of winter. It also has a tendency to send out blossoms in autumn if the weather is mild, and in this way the canes are weakened. Still the foliage rusts as little as that of any other, and on the whole it is our best red berry. Golden Queen is nearly as good, but it is softer. Both bear enormous crops, and the canes may stand quite close in the rows. What we need is the rich flavor of Turner and ability to stand and bear in rows, which Turner lacks. Rancocas is a failure, and Marlboro needs nursing. This last is of a class that easily loses foliage.

Among the black Raspberries, Kansas may yet prove the leader. Gregg was too liable to kill by frost. Palmer was a notable improvement, but not so big as Gregg, and in some sections it dies out quickly. I have a lot of seedlings, crosses of Davison and Gregg, that promise well. They are now planted for test.

The raspberry market is such a good one that it ought to tempt horticulturists to try seedlings till they get decided improvements. It occurred to me that the Shaffer might make a good parent; but so far all of its seedlings turn out to be pure black, and none of them are remarkable in any way.

Clinton, N. Y. *E. P. Powell.*

Summer Pruning.—Where shrubs and trees are pruned for the purpose of increasing flowers, different species should, of course, receive different treatment. Those which bloom on wood made the previous year, like the Forsythias, Syringas and early Spiræas, should receive their main pruning soon after the flowers have fallen, so that the young wood will start to grow and develop flower-buds for the following spring. Plainly such buds will be sacrificed if the branches are taken off before flowering time in spring. On the other hand, Hydrangea paniculata, Hibiscus Syriacus, the late-blooming Tamarisks and other shrubs which flower on the new growth, or the wood of the year, will bloom more abundantly when cut back hard in spring. Nevertheless, in any considerable collection of shrubs pruning must be attended to throughout the whole growing season. The surplus wood can always be thinned out during the summer, and clean-cut wounds will then heal more quickly than those made in frosty weather. This is particularly true of trees like the Birches and Maples, which in early spring bleed copiously, but quickly cover over wounds with new bark when in full leaf. Many shrubs are pruned too much, but where strong-growing ones are planted with those of more delicate habit, the robust ones must be restrained or they will smother their less vigorous neighbors. After a shrub has been carefully pruned, the surplus branches cut away to admit light, and the old flowering wood shortened in, it will still be necessary in midsummer to stop the stronger-growing shoots with the thumb and finger. This directs the vital forces of the plant to the development of flowering buds, and shrubs and trees treated in this way will produce more flowers and fruit, and produce these when they are smaller than if they were left to themselves after the spring pruning. Summer pinching is useful, too, in ripening up the wood, so that it will be in good hard condition to endure the winter cold. The practice is especially good with trees which grow vigorously and in wet seasons when the branches continue to grow late. This work requires good judgment, it is true, but when carefully done it not only helps to form symmetrical plants, but it is the surest and safest means of making these plants strong, floriferous and fruitful.

Clinton, Conn. *R. S.*

Correspondence.

Injuries by Seventeen-year Locusts.

To the Editor of Garden and Forest:

Sir,—The locusts have done much injury to our young trees here; many of them are punctured all over, and most of the young branches have died; others have not suffered so badly, but all are injured. Would it be advisable to cut off the damaged branches and burn them?

Cornwall-on-Hudson, N. Y. *D. G.*

[Where these insects have abounded this year they have damaged trees severely. In some parts of New York and New Jersey fruit-trees have been cut back to the ground, not only every twig and branch, but even the trunks, having been used for oviposition. Little will be gained, however, by cutting the injured branches back. Branches which have been punctured so badly that they will die, will sooner or later be broken by the wind and fall off, while the tree will do what it can to repair the damages in the larger branches. If the twigs are cut back to the punctures as soon as the leaves die beyond them, something will be gained in the matter of appearance, but that is all. The burning of the branches would destroy a few thousand eggs, but this would make no impression on the millions of insects which will appear at their next resurrection. Professor J. B. Smith, of the New Jersey Agricultural Experiment Station, writes that almost every variety of trees except coniferous evergreens in that state have been attacked, and that all shrubs, even down to the Poison Ivy which climbs over the fence-posts, have been cut.—Ed.]

Recent Publications.

The Industries of Russia. English edition. Translated by John Martin Crawford, United States Consul to Russia. The third volume of this important work, which is devoted to the agriculture and forestry of the empire, contains the best account of the composition and distribution of its forests and the methods adopted for their protection and development which has yet been published in the English language.

Russian forests, unlike those of Germany, are not the result of artificial sowing, but are of natural growth; and a Russian forest, like those of the United States, rarely consists of any single species of tree or of trees of the same age, but is made up of a mixture of trees of various species and ages. Unlike the forests of North America, however, the Russian forests of the north are composed of few species, their number increasing in lower latitudes, so that in the south a comparatively large variety of trees and shrubs is met with.

To the student of our American forests the small number of arborescent species of economic importance in the Russian forests will appear remarkable. The principal Russian trees are the Pine, Fir, Oak, Birch, the Trembling Poplar and the Linden; that is, these are the predominating species over immense areas of the empire. Other species, like the Beech, the Elm, the Silver Fir, the Larch and the Swiss Pine, in this work usually spoken of as Siberian Cedar, have, of course, great value economically, although, owing to climatic conditions, they are of inconsiderable geographical distribution within the empire.

The most-widely distributed and important timber-tree

of Russia is the common Pine, Pinus sylvestris, which occurs in more or less continuous areas over at least two-thirds of the whole of European Russia, extending from nearly the seventieth degree of latitude in the north ten degrees south, that is, nearly to the northern boundary of the government of Kieb.

Of the Silver Firs, Abies pectinata, which is one of the most important timber-trees of central and western Europe, is of little importance in Russia, and only occurs in the governments of the Vistula to the west of that river, where it grows in company with the Beech. The Siberian Fir, Abies Sibirica, is of greater importance, covering as it does extensive areas in the north-eastern provinces.

But the most widely distributed of all the trees of Russia is the Birch, Betula alba, which grows over the greater portion of the empire in several varieties, which often intermix. This tree grows over almost the whole of European Russia, extending to the Lapland coast of the Arctic Ocean, and in the north-east to Pechora, in latitude sixty-seven north, ranging in the south to the steppes, into which it pushes for considerable distances along the river valleys, and reaching the Crimea and the mountains of the Caucasus.

It is only within the present century that timber has been regarded as marketable in Russia. A hundred years ago, when the forests were private property, they were looked upon as pasture-land from which any one who had need of the timber was free to cut it; and the Crown, as the proprietor of vast areas of woodland and of large numbers of peasants settled thereon, considered, too, the chief economic problem, so far as the forests were concerned, to be the satisfying of the wants of the peasants for timber, which facilitated the collection of the poll-tax, the forest itself not being regarded as a direct source of revenue. And although attempts were occasionally made to introduce forest-rules and regulations into the management of the Crown lands, forest-administration really dates no farther back than thirty years ago.

The first step taken was the replacement of the selective system of felling for the continuous periodic system, although this did not at first attain its chief economic purpose, which was to guarantee the renewal of the forests after felling, owing to the excessive extent of the land under forestry directions; and the most hopeful feature in the forest-administration is claimed to be the fact that Russian foresters recognize little value in much of the mere book-learning founded on German experience, and usually upon conditions which do not obtain in Russia. The impracticability of utilizing German experience in Russia "has given rise to the idea of the necessity of conducting and registering independent experiments for the purpose of discovering really practical measures capable of guaranteeing the best growth of Russian forests and the best means of renewing them. All this is still a matter of the future; but the results will not be long in favorably showing themselves, as the requisite agents are not wanting in the form of a sufficient number of foresters with a practical experience and a distinctly announced tendency on the part of the Forest Direction, to diminish the areas of the forest-ranges, with a view of enabling the foresters to raise the technical level of the forest-management after preliminary administrative problems have been successfully solved."

A considerable portion of Russia is still only covered by woodland, although the figures representing its extent are usually exaggerated, owing to the fact that this is made to include waste tracts which are unsuitable for cultivation, and consist of bogs; and from a carefully prepared account, which will be found upon page 326, it appears that in reality less than one-half of Russia is rich in forest-land; that one-fifth is poorer than Germany or France, and that one-eighth has scarcely any forest at all.

Articles made of wood have never given rise in Russia to great centres of manufacture, although whole series of various home industries have been supplied with material by the forests. Near the Black Forest, in the Kherson government, peasant colonies occupy themselves with producing wooden ware, and this forest and others in the south are little more than widely extended ranges of village trade-shops; and all that part of Russia which is not completely denuded of trees is occupied by carriage-makers, coopers, joiners and turners, who supply the empire with their chief products. Curiously enough the inhabitants of one village often occupy themselves with one branch of a certain industry, while those of another village devote themselves exclusively to other branches of the same industry, different villages, though situated close together, often dividing among themselves the production of parts of one and the same article. The special occupation in the several villages in the Semenovsk district is the manufacture of spoons in the rough, while the people living in the second village turn them, and those in the third paint them, although in no single village and in no single family is a complete spoon produced. One district is famous for its manufacture of harmonicas, the work being divided among several master workmen. This industry, which was started fifty years ago by two peasants, has grown to considerable proportions, about two hundred and fifty thousand harmonicas being now turned out every year.

But the most important, probably, of the minor industries springing from the forest is the preparation of bast, the inner bark coating of the Linden, from which are made shoes, which are worn by a majority of the inhabitants of northern and eastern Russia. Hardly less important is the production of what is called "bast twist," from which our well-known bast mats are made. The amount of bast produced in Russia is extremely large. In the Viatka government alone about 500,000 trees are felled every year for this purpose.

The distillation of pitch and tar forms one of the oldest industries of Russia, and it is said, on trustworthy authority, that in the thirteenth century Kiev was trading in these articles with Breslau; and when Novgorod belonged to the Hanse League pitch was an important article of its foreign trade. Pine now forms almost the sole material for the production of pitch, although in early times in Russia, as well as in Germany, Fir-wood was much preferred for this purpose.

The average annual export of timber from Russia now amounts to 141,000,000 pounds, worth 48,000,000 roubles, and imports 12,500,000 pounds, worth 5,500,000 roubles.

Interesting chapters are devoted to the forest-resources and industries of the Caucasus and of Turkestan, but the length to which this notice has already extended precludes our referring to them at length or saying anything of the chapters on climate, soil, the system of Russian agriculture, cultivation of the soil, gardening, including kitchen-gardening and orcharding, or other subjects of interest to rural economists.

A bulletin on Peach yellows and Peach rosette, prepared by Mr. Erwin F. Smith, has just been published by the United States Department of Agriculture, which, while it contains no important new facts, brings together what is known of these diseases in convenient form. Besides Peaches, it has been known for a long time that Nectarines, Almonds and Apricots are subject to this disease, and it has been recently observed that the Japanese Plums are to a certain extent susceptible to it. Certainly it is a transmissible disease, and sound trees are subject to it. As to its nature there has been much speculation, and no fungi, bacteria or animal parasites have been identified as the cause. With our present knowledge, the Peach yellows seems nearest allied to that phenomenon in plants known as "variegation," which is a sort of disease manifesting itself in stunted growth, imperfect assimilation, hastened development and feeble vitality. Moreover, in a number of variegated plants this condition is transmissible to healthy stocks by budding or grafting in the same way as Peach yellows is. So far as known, the only remedy is to cut out and destroy all trees as soon as the disease is indicated, and it is best to burn them, roots and all, if possible. Peach rosette is

a disease of the same type as the yellows, but its first stages are more striking and its progress more rapid. Nothing is known of its cause, but it is virulently contagious, and in regions infected by either of these two diseases successful Peach-culture can only be assured by well-directed, vigorous and united effort in digging out and destroying diseased trees. This bulletin is well illustrated, and will be found interesting to every fruit-grower.

Notes.

Mr. E. G. Lodeman, instructor in horticulture at Cornell University, has sailed for Europe to investigate the diseases of grapes in France and Italy, and the methods of treating these diseases there by spraying and otherwise. He will spend the summer among European vineyards.

Maple-wood is so rapidly growing in favor in this country as flooring material that improved methods of preparing it have recently been devised. The demand has already reached extended proportions, and the *Northwestern Lumberman* states that the larger dealers are now obliged to make contracts for millions of feet far in advance of requirement, as is done with pine or any other wood of extensive consumption in the building trades and manufactures. It is now more generally used than any other wood for the floors of public buildings, and is largely employed in dwelling-houses also.

Occasionally there comes to this market from the West Indies a yellowish-red fruit, shaped like a hen's egg, but rather larger and usually called Grenadilla. This is botanically the fruit of Cyphomandra betacea, or the Tree Tomato, which is a native of the tropical Andes. In course of time it found its way to Jamaica, from which place it was sent by Mr. D. Morris, of Kew, then Director of the Botanical Gardens there, to India, Ceylon and other tropical countries. In South America it is largely used for cooking in place of the ordinary tomato, and in India it is becoming popular, where, when fully ripe, it is made into tarts, and is sometimes eaten raw like gooseberries, which it is said to resemble slightly in taste.

Many theories have been proposed to explain the absence of forests in large portions of the great inland basin of the United States, including both prairies which lie mainly east of the Missouri and the plains which lie west of that stream. A new explanation for the absence of trees in this area has lately been offered in the *London Geographical Journal* by Mr. J. W. Redway. He holds that seeds have been mainly carried and distributed through the agency of water, and that the spread of forest-growth without this natural aid, or some artificial aid, would be very slow. He argues that our treeless regions have never been overflowed by running streams since they became dry land, and consequently they have never been sown with forest-seed. Wherever the water of running streams has spread, seeds have been carried and forests have appeared. According to this view, these regions have always been treeless, and therefore Mr. Redway considers that the nature of the soil, which was the explanation offered by Lesquereux and Professor Whitney, and sweeping fires, which has been the most generally accepted view, are not the principal agents in causing this treeless condition.

It is definitely announced that the American Forestry Association will hold two meetings consecutively, one at Brooklyn, conjointly with the American Association for the Advancement of Science, and the second in the White Mountains. The meeting in Brooklyn will be held on Wednesday evening, August 22d, at the Packer Institute, and on Tuesday evening Mr. B. E. Fernow will deliver an illustrated lecture at the Academy of Music. On Friday, August 24th, the members of the Association will go to North Woodstock, New Hampshire, and in the evening a lecture will be delivered upon "The White Mountains," by the Hon. J. H. Walker, of Concord, New Hampshire, and an illustrated description of the itinerary of the excursion will be given by George H. Moses, Secretary of the New Hampshire Forest Commission. On Saturday there will be excursions in carriages and by special trains to different points in the White Mountain forests, and in the evening a session will be held at the Profile House. On Monday the members of the Association will have an opportunity to inspect the forest at various points, and in the evening at the Intervale House, Professor J. T. Rothrock will deliver a lecture.

The editor of the *Rural New Yorker* has been trying new varieties of Strawberries at the rate of about seventy-five varieties a year for fifteen years past, and the result of his experience is that he has only found one new variety in three years that could fairly be pronounced superior to the then existing varieties; that is, in fifteen years of trial he can count five superior varieties which have succeeded in his particular location, namely, Crescent, Sharpless, Parker Earle, Timbrell and (doubtfully) Brandywine. For home use the old Charles Downing is still Mr. Carman's first choice where it thrives, and it does thrive over a wide extent of country. For earliest he would name Rio and Beder Wood. Of course, many other varieties are valuable in particular places. Mr. Durand's seedlings, for example, are incomparable in certain soils and exposures. The fact is there are few Concords among Strawberries. Timbrell, which Mr. Carman considers unrivaled as a late berry in regard to firmness, productiveness and quality combined, makes a very poor showing in some other places, and so good an authority as J. H. Hale writes that his plants of that variety made a poor growth last year, rusted considerably, and in the trial-beds have been the most unsatisfactory of the sixty-eight varieties which fruited with him this year. Judging from what he has seen of it at home and in other places he should pronounce it practically of no value and utterly unworthy of cultivation.

Although not a single car-load of California fruit has reached this city for more than ten days, California plums and California cherries are still sold on the streets at prices not much above the ordinary retail figure. This is an indication of the extent to which cold-storage is employed in this city. But for the railroad blockade sixty or seventy car-loads of California fruit would be coming into this market every week at this season, and no doubt the absence of so large a portion of the supply explains why pineapples bring such good prices, why summer oranges from the Mediterranean are selling from $5 a box and upward, and why bananas, although in great abundance, are in still greater demand. Niagara grapes are coming from Florida, but they are sour and not mature enough for market. The cherry season is practically over, although occasionally some good fruit comes from western New York. Good cherry currants can be had for ten cents a quart. The supply of huckleberries is still abundant, and the best ones now come from Shawangunk Mountains. Le Conte pears, from the south, bring $6.50 and upward a barrel, and a few Jargonelles are coming from Maryland with Early Harvest, Sugar Tops and other summer varieties from near-by points, many of which are unripe, tasteless and deservedly cheap, while well-grown and well-ripened fruit is scarce and high. The Government crop reports show that the peach crop, taking the country all through, will not be one-quarter of an average, although in California it is almost up to the standard. Apples, too, will be in meagre supply and not reach half a crop. These reports also tend to strengthen prices, so that it is no wonder that hand-picked Astrachans and Sweet Boughs bring $4.00 and upward a barrel, while standard peaches, like Hale's Early and Early Rivers, from Maryland and Delaware, are considered cheap when sold in quantity at $2.00 a basket.

Edmund Williams, for two years past President of the New Jersey Horticultural Society and for many years its Recording Secretary and controlling force, died on July 12th, after a long illness, at his home in Montclair. Mr. Williams was recognized throughout the country as one of our leading authorities on fruits and their cultivation. He devoted his life to this work, and his habit of accurate observation and his sound judgment, added to absolute honesty and freedom from prejudice, gave his expressions of opinion unusual weight. He was a frequent contributor to this journal and other papers, and what he wrote had sterling practical value as the expression of a wide experience and a singularly clear insight. In character Mr. Williams was as simple as a child, modest, generous, public-spirited, truthful. Every one who casually met him was drawn to him at once by his kindly bearing, his sincerity and frankness, and yet few beyond the circle of his intimate friends knew the genuine worth of the man. His death means a loss to the cause of horticulture in his native state that is almost irreparable. He belonged to that older generation who pursued their chosen calling with an enthusiasm and devotion which seem to be lacking in more recent times, and there is no one left to fill his place, especially in the Horticultural Society, which he did much to organize, and which owes a large part of its success to his self-denying zeal. For many years Mr. Williams had been afflicted with an incurable disease, and his sufferings for the past three months have been so great that when the end came it was a relief to his friends to see him lying at rest. He was sixty-three years old, and he always lived on the farm where he was born and where he died.